REMARKS

In the Office Action, the Examiner (1) objected to claim 13 for informalities; (2) rejected claims 11, 14-22, 25-27, 33-35, 37 and 38 under 35 U.S.C. § 103(a) as being unpatentable over Walton et al. (U.S. Patent No. 6,493,331) in view of Van Nee (U.S. Patent No. 6,175,550); (3) rejected claims 12, 13, 31, 32, 36, 39, and 40 under 35 U.S.C. §103(a) as being unpatentable over Walton et al. in view of Van Nee and further in view of Pierzga et al. (US2001/0055320) and Seki et al. (U.S. Patent No. 5,771,224); (4) rejected claims 23, 24, 42, 44, and 45 under 35 U.S.C. §103(a) as being unpatentable over Walton et al. in view of Van Nee and further in view of Berens et al. (U.S. Patent No. 6,272,183); (5) rejected claims 29, 30, and 41 under 35 U.S.C. §103(a) as being unpatentable over Walton et al. in view of Van Nee and further in view of Hornsby et al. (U.S. Patent No. 6,396,803); (7) rejected claims 43, 46, and 47 under 35 U.S.C. §103(a) as being unpatentable over Walton et al. in view of Van Nee and further in view of Berens et al. and Seki et al; (8) rejected claim 48 under 35 U.S.C. §103(a) as being unpatentable over Walton et al. in view of Van Nee and further in view of Berens et al. and Hornsby et al.

Applicants have amended claim 13. Claims 11-48 remaining pending in the application.

With regard to the claim 13, the Examiner objected to this claim for informalities. In particular, the Examiner suggested that "an I sequence and a Q sequence" in line 7 should be changed to - - the I sequence and the Q sequence - -. Applicant would like to thank the Examiner for this suggestion. Applicant has amended claim 13 to remove

the language objected to by the Examiner. Applicant therefore respectfully requests that the Examiner withdraw the objection to claim 13.

Turning to the rejections under 35 U.S.C. §103(a), Walton et al., the primary reference relied on by the Examiner, is directed to method and apparatus for controlling transmissions of a communications system. Walton et al. illustrates in Figure 15, a block diagram of a data processor and modulator. This block diagram illustrates encoders (1512), channel data processors (1532), a single combiner (1534), and a plurality of IFFT processors (1520).

Claim 1 of the present invention recites, in part, a modulation and demodulation system, comprising:

a transmitter, comprising:

* * *

a serial-to-parallel converter that converts a received first bit-stream into a plurality of first sub bit-streams;

* * *

a channel selector that is coupled to each of the mappers for receiving an output from each of the corresponding mappers;
a complex inverse Fast Fourier Transform processor that is coupled to the channel selector for receiving the plurality of first sub-bit streams processed by the plurality of Turbo Code encoders, wherein the channel selector assigns the plurality of first sub-bit streams to a plurality of first sub-channels associated with the complex inverse Fast Fourier Transform processor, wherein the inverse Fast Fourier Transform processor outputs a plurality of first complex samples, and wherein the plurality of first complex samples each include an I sequence and a Q sequence; and

* * *

Walton et al. fails to teach a complex inverse Fast Fourier Transform processor that is coupled to the channel selector for receiving the plurality of first sub-bit streams processed by the plurality of Turbo Code encoders, wherein the channel selector assigns the plurality of first sub-bit streams to a plurality of first sub-channels associated with the complex inverse Fast Fourier Transform.

Rather, Walton et al. discloses a plurality of Inverse FFT processors 1520. Each of these IFFT processors receives only a sub-part of the data streams demultiplexed by demux 1410. In particular, Walton et al. discloses that the encoded data for each channel data stream is provided by the demux 1410 to a plurality of channel data processors 1532 that further demultiplex the data streams into a plurality of sub-streams. Walton et al. further discloses that combiner 1534 then combines the modulation symbols designated for each antenna and provides them to each modulation block 1414 (each of which includes an IFFT processors 1520. (Walton et al. col 54:18-39).

As such, in the system of Walton et al., each IFFT processor 1520 only receives a sub-part of the data streams demultiplexed by the demux 1410.

Applicant therefore respectfully submits that claim 1 is allowable over Walton et al. for at least the reason that Walton et al. fails to teach or suggest a complex inverse Fast Fourier Transform processor that is coupled to the channel selector for receiving the plurality of first sub-bit streams processed by the plurality of Turbo Code encoders, wherein the channel selector assigns the plurality of first sub-bit streams to a plurality of first sub-channels associated with the complex inverse Fast Fourier Transform.

With regard to <u>Van Nee</u>, the secondary reference relied on by the Examiner, the Examiner relied on <u>Van Nee</u> merely for disclosing a complex FFT processor. (Office Action at 4). <u>Van Nee</u>, however, does not cure either of the above noted defects of <u>Walton et al.</u>

As such, Applicants respectfully submit that independent claim 11 is allowable over the cited references for at least the reason that neither reference, whether taken alone or in combination, teaches or suggests the invention of claim 11.

In addition to the above-discussed <u>Walton et al.</u> and <u>Van Nee</u> references, the Examiner also, in rejecting other claims, relied on <u>Pierzga et al.</u>, <u>Seki et al.</u>, <u>Berens et al.</u>, and <u>Hornsby et al.</u> None of these references, however, cure the above-noted defects of <u>Walton et al.</u> and <u>Van Nee</u>.

Applicants further respectfully submit that independent claim 42, which includes similar recitations to those of claim 11, is likewise allowable for at least the above-discussed reasons. Applicants further respectfully submit that claims 12-41 and 43-48 that depend from claims 11, 42 are allowable for at least the reason that they depend from claims 11 and 42 respectively.
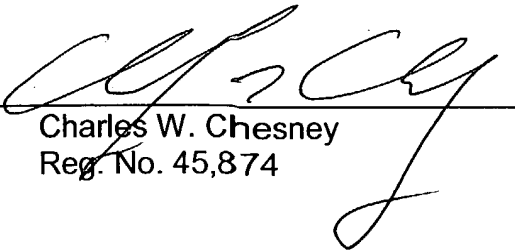
In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 50-0311.

Respectfully submitted,

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